REMARKS

I. Overview

These remarks are set forth in response to the Non-Final Office Action mailed April 30, 2008. As this amendment has been timely filed within the three-month statutory period, neither an extension of time nor a fee is required. Presently, claims 1 through 20 are pending in the Patent Application. Claims 1, 10 and 19 are independent in nature. In the Non-Final Office Action, claims 1-20 have been rejected on cited art. Specifically, claims 1, 4-6, 10, 13-15 and 19 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ignasi Esquerra et al., Design of a Phonetic Corpus for Speech Recognition in Catalan, Universitat Politècnica de Catalunya (Barcelona, Spain 1998), hereinafter "Esquerra". Further, claims 2-3, 7-8, 11-12, 16-17 and 20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Esquerra in view of U.S. Patent No. 5,794,189 to Gould. Further, claims 9 and 18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Esquerra in view of Dept. of Psychology, Univ. of Essex ("Phoneme Search"), hereinafter "Essex."

II. The Applicant's Invention

The Applicant has invented a system, method and apparatus for a phonetic coverage interactive tool for developing a script to be used with speech recognition systems. A script development tool is a software or computing application which is operated by a user or developer. The tool incorporates a language model for the particular language to be used with the speech recognition application for which the script is to be used. Included in the language model is a particular speech products vocabulary which defines the set of speech products, or words, that the language model uses, and that the tool will recognize.

In operation, the tool receives a starting script as an input and analyzes the words and phonemes in the script, given the particular language model and the speech products vocabulary. It thereafter produces a set of statistical results as an output, which mainly include statistics as to the particular phonetics of the starting script. These "phonetic statistics" may include data as to the number of times each phoneme, as defined by the language model, occurs in the script, or data as to which phonemes do not appear at all in the script. The user will then inspect the results, on any device which is capable of reproducing the results in a perceptible form, and decide whether any changes need to be made in the script.

If the script is lacking in certain phonemes, the user may then enter a word containing the missing phonemes into the script development tool, which updates the script, and reanalyzes the script to produce a new set of statistics. These statistics can thereafter be reanalyzed for phoneme coverage, and so forth. In addition to adding words to the script, the user may also remove words, if the phoneme coverage is not as uniform as desired. In this way, the tool can be used to take a given script and correct the phoneme coverage for the script, for any given language. Additionally, the tool greatly reduces the amount of time required to develop such a script, and gives developers an instant picture of the phonetic statistics of any script, as it is developed.

III. Characterization of the Cited Art

1. Esquerra

Esquerra discloses the design of a corpus for speech recognition to be used for the recording of a speech database in the Catalan language. A previous database in Spanish was the reference in setting the specifications about the characteristics of the sentences and in the minimum number of units required. An analysis of unit frequencies were carried out in order to

know which units were relevant for training and to compare the results with the figures from the designed corpus. Three different sub-corpora were generated, one for training, the other for vocabulary-independent verification and the third for vocabulary-dependent verification. Short sentences were obtained that contained all phones and relevant diphones in a sufficient quantity. Evaluation of the corpus characteristics was performed using several parameters to validate database specifications. Using this corpus, a speech database was recorded over a telephone line and manually labeled, and used to train and test speech recognition systems.

2. Gould

Gould teaches a method for use in recognizing speech in which signals are accepted corresponding to interspersed speech elements including text elements corresponding to text to be recognized and command elements to be executed. The elements in Gould are recognized and modification procedures are executed in response to recognized predetermined ones of the command elements. The modification procedures in turn include refraining from training speech models when the modification procedures do not correct a speech recognition error. Optionally, the modification procedures include simultaneously modifying previously recognized ones of the text elements.

3. Essex

Essex teaches a method for searching for phonemes wherein the search generates a list of words, their phonetic transcriptions, their associated frequencies per million and word lengths. Words can be searched based on portions of the word, as represented by selectable phonemes. The character set used for the phonetic transcriptions is a machine-readable phonetic alphabet.

IV. Rejection of Claims 1, 4-6, 10, 13-15 and 19 Under 35 U.S.C. § 103(a)

In the Office Action, the Examiner rejected claims 1, 4-6, 10, 13-15 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Esquerra. The Applicant respectfully disagrees and traverses the Examiner's rejection.

In para. 1, p. 6 and para. 2, p. 8 of the Office Action, the Examiner recites section 2 of Esquerra (and specifically the Esquerra phrase "reference corpus") in support of the notion that Esquerra discloses the claim limitation "reading language phoneme data for a given language, the language phoneme data having a plurality of phonemes" of independent claims 1 and 10. Section 2 para. 1 of Esquerra recites:

> "In order to know how often the phonetic units appear in Catalan, a frequency analysis was performed over a text corpus of 66000 words obtained mainly from an electronic newspaper on the Internet. Since the objective of this corpus is to analyze colloquial speech, opinion articles and interviews were mainly selected among all available texts. Hereinafter, the corpus is called reference corpus because the unit frequencies obtained from its analysis will be used later in the design of the phonetic corpus for recognition."
>
> "First of all, texts were processed to put abbreviations, numbers and other non-readable symbols in its orthographic form. Then, the corpus was converted into phonemes using a transcription program developed at UPC for a text-to-speech system [5]. A set of 37 phonetic symbols, including some allophonic variations and one special symbol for pauses, has been considered to represent the sounds of Catalan using SAMPA notation." (Emphasis added)

Thus, the Examiner has equated Esquerra's "reference corpus" with the claim limitation "language phoneme data." This is not a proper equation. Esquerra's "reference corpus" comprises text from a newspaper, interviews and articles and therefore constitutes a simple sample of a language. The claim limitation "language phoneme data," however, pertains to a language model (see item 54 of FIG. 2 of Appellant's disclosure) that may include a speech products vocabulary (see item 65 of FIG. 2) that defines the set of speech products or words that the language model uses (see para. 18 of Appellant's disclosure). A language model defines a probability of a sequence of words (such as a sentence) by means of a probability distribution. A

speech products vocabulary provides a defined vocabulary for a language. Esquerra's "reference corpus," therefore, does not disclose the claim limitation "language phoneme data" of independent claims 1 and 10.

On this point, the Examiner argues on p. 3 of the Office Action that the "reference corpus" of Esquerra can be interpreted to mean the "language phoneme data" of claims 1 and 10 because "language phoneme data" is not explicitly defined in the specification and therefore the claim term can be interpreted to mean any collection of data from which information on the phonemes of a language can be drawn from. The Examiner is reminded that in this situation (where an explicit definition of a claim term may be missing from the specification), the words of a claim must be given their plain meaning unless the plain meaning is inconsistent with the specification. *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989); *Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1372, 69 USPQ2d 1857 (Fed. Cir. 2004) (Ordinary, simple English words whose meaning is clear and unquestionable, absent any indication that their use in a particular context changes their meaning, are construed to mean exactly what they say.) See also MPEP § 2111.01. Thus, in the instant case, the plain meaning of the claim term "language phoneme data" should be given its plain meaning. The plain meaning of a phoneme is a set of phones that are cognitively equivalent. Thus, the plain meaning of "language phoneme data" is the plurality phonemes that occur in a given language.

Next, in para. 2 p. 6, para. 3 p. 8 and para. 1 p. 10 of the Office Action, the Examiner equates the "script data" claim limitation of independent claims 1, 10 and the "script" limitation of independent claim 19 with the following text from section 3.1, para. 1 of Esquerra:

> "To generate the corpus of sentences, the following iterative method was used. From a large corpus of newspapers texts, sentences between 10 and 40 letters were selected, transcribed and sorted according to a phonetic probabilistic criteria [3].

Thus, the Examiner has equated Esquerra's selection of sentences from a "corpus of sentences" with the "script data" claim limitation of claims 1, 10 and the "script" claim limitation of claim 19. As can be seen in the citation above, Esquerra's "corpus of sentences" are derived from seemingly the same source as Esquerra's "reference corpus" above, i.e., from newspapers, articles, etc. Thus, both Esquerra's selection of sentences from the "corpus of sentences" and Esquerra's "reference corpus" above constitute a simple sample of a language. In sum, the Examiner believes that two separate and distinct claim limitations, "language phoneme data" and "script data," mean the same thing – a sample of text. The Examiner cannot properly ascribe the same meaning to two separate and distinct claim limitations.

On this point, the Examiner argues on p. 3 of the Office Action that Esquerra's selection of sentences from the "corpus of sentences" and Esquerra's "reference corpus" because they are two separate entities. Applicant agrees that the two items are separate entities. However, it is clear from the description in Esquerra that the selection of sentences from the "corpus of sentences" is simply a subset of the "reference corpus" of Esquerra. Thus, one item, the former, is simply a portion or subset of the other, the latter. The Examiner goes on to state on p. 3 of the Office Action that the selection of sentences from the "corpus of sentences" are scripts because they are a collection of texts from which phoneme data can be retrieved, as described in Esquerra. The definition of a script in paragraph [0003] the Applicant's own specification, however, states that a script is text that is read aloud by a user so as to garner an example of a particular user's voice signature and speaking style. Thus, the Examiner's arguments on this point are not persuasive.

Next, in para. 3 p. 6, para. 4 p.8 and para.1 p.10 of the Office Action, the Examiner goes on to equate the "phonemes" claim limitation of independent claims 1, 10 and 19 with the following text from section 3.1 para. 1 of Esquerra:

> The most "interesting" sentences, i.e. those having the less frequent allophones, were retained and units were counted to know whether they reach the minimum number of required repetitions; otherwise more sentences were taken and the process was done again.

Thus, the Examiner is effectively equating Esquerra's "units" with the "phonemes" claim limitation. The Conclusion of Esquerra clearly provides that "units" are not phonemes, but phones including allophones and diphones. The text of the relevant portion of section 5, the Conclusion of Esquerra is reproduced for the convenience of the Examiner as follows, "As a first step, a text corpus was transcribed and segmented to count the number of occurrences for each type of unit (phones, allophones and diphones)." Wikipedia notes that a diphone is an adjacent pair of phones, while an allophone is one phone of many that belong to the same phoneme. Therefore, diphones and allophones are phones of a particular type and Appellant's argument provided above describes how a phone is not the same as a phoneme. Thus, the Esquerra term "unit" and the claim term "phoneme" are not synonymous and the application of the term "unit" in Esquerra cannot be held to be the equivalent of a "phoneme" as recited in claims 1, 10 and 19.

On this point, the Examiner argues on pages 4 and 5 of the Office Action that allophones are variations of phonemes and so the count of allophones are also a count of phonemes. The Examiner asserts that because Esquerra teaches counting allophones, he therefore also teaches counting phonemes. By the Examiner's own statement, allophones are not the same phonemes since one is a variation of the other. Because an allophone is one phone of many that belong to the same phoneme, it goes to stand that counting allophones does not immediately provide an accurate count of phoneme. Rather, after all allophones are counted, a separate categorization of

allophones into corresponding phonemes must be made in order to reach an accurate count of phonemes. Thus, by the argument above, a sole count of allophones does not always provide an accurate count of phonemes. Therefore, the Examiner's argument is not persuasive.

Therefore, Esquerra does not disclose the claimed limitations. Accordingly, the Examiner has failed to establish that the applied art teaches all of the claimed features. Thus, Esquerra does not disclose the elements of the claimed invention. For the reasons stated above, Applicant respectfully requests withdrawal of this rejection of independent claims 1, 10 and 19.

Claims 4-6, 13-15 are dependant claims and therefore include all of the limitations of independent claims 1, 10, from which they depend respectively. For the reasons stated above, the Esquerra reference does not disclose every element of the dependant claims 4-6, 13-15. For the reasons stated above, Applicant respectfully requests withdrawal of this rejection of the claims.

Furthermore, the Applicant asserts that the Esquerra reference is not operable and therefore not enabling. "In determining that quantum of prior art disclosure which is necessary to declare an applicant's invention 'not novel' . . . the stated test is whether a reference contains an 'enabling disclosure'... ." *In re Hoeksema*, 399 F.2d 269, 158 USPQ 596 (CCPA 1968). The disclosure in an assertedly anticipating reference must provide an enabling disclosure of the desired subject matter; mere naming or description of the subject matter is insufficient, if it cannot be produced without undue experimentation. *Elan Pharm., Inc. v. Mayo Found. For Med. Educ. & Research*, 346 F.3d 1051, 1054, 68 USPQ2d 1373, 1376 (Fed. Cir. 2003) (At issue was whether a prior art reference enabled one of ordinary skill in the art to produce Elan's claimed transgenic mouse without undue experimentation. Without a disclosure enabling one skilled in the art to produce a transgenic mouse without undue experimentation, the reference would not be applicable as prior art.). A reference contains an "enabling disclosure" if the public was in

possession of the claimed invention before the date of invention. "Such possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his [or her] own knowledge to make the claimed invention." *In re Donohue*, 766 F.2d 531, 226 USPQ 619 (Fed. Cir. 1985).

A review of the Esquerra reference reveals that the reference does not disclose any description of a basic computer architecture necessary to enable such a system in the real world. The Esquerra reference is simply an academic paper that should be accorded the weight of such a document. The reference makes no mention of the basic computer building blocks that would be necessary to build the systems described by the reference by a person of ordinary skill in the art. More specifically, the Esquerra reference makes no mention of any computer, processor, memory or communications bus – the basic building blocks of a computer system, which is described in detail in Applicant's disclosure. There can be no enabling disclosure of a computer system when none of the basic building blocks of a computer system are disclosed in the disclosure.

In short, the Esquerra reference is a general description of a speech processing approach, but the reference does not describe a computer system with enough specificity to be an "enabling disclosure." For this reason, the Esquerra reference is not an appropriate prior art reference and for the additional reasons stated above, Appellant respectfully requests a withdrawal of this rejection of the claims.

V. Rejection of Claims 2-3, 7-8, 11-12, 16-17 and 20 Under 35 U.S.C. § 103(a)

In the Office Action, the Examiner rejected claims 2-3, 7-8, 11-12, 16-17 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Esquerra in view of Gould. The Applicant respectfully disagrees and traverses the Examiner's rejection.

Claims 2-3, 7-8, 11-12, 16-17 and 20 are dependant claims and therefore include all of the limitations of independent claims 1, 10 and 19, from which they depend respectively. For the reasons stated above, the Esquerra reference does not disclose every element of the dependant claims 2-3, 7-8, 11-12, 16-17 and 20. Furthermore, neither the Esquerra reference nor the Gould reference nor any combination of the two references disclose every element of the dependant claims 2-3, 7-8, 11-12, 16-17 and 20. For the reasons stated above, Applicant respectfully requests withdrawal of this rejection of the claims.

VII. Rejection of Claims 9 and 18 Under 35 U.S.C. § 103(a)

In the Office Action, the Examiner rejected claims 9 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Esquerra in view Essex. The Applicant respectfully disagrees and traverses the Examiner's rejection.

Claims 9 and 18 are dependant claims and therefore include all of the limitations of independent claims 1, 10, from which they depend respectively. For the reasons stated above, the Esquerra reference does not disclose every element of the dependant claims 9 and 18. Furthermore, neither the Esquerra reference nor the Essex reference nor any combination of the two references disclose every element of the dependant claims 9 and 18. For the reasons stated above, Applicant respectfully requests withdrawal of this rejection of the claims.

VII. Conclusion

The Applicants respectfully request the withdrawal of the rejections under 35 U.S.C. § 103(a). The Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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